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Customer: XYPEX CE Ltd.
 Thákurova 7, 166 29 Prague 6, Czech Republic

PROTOCOL No.: 123019/2010

Test procedure and standard: Depth of penetration of water under pressure- ČSN EN 12390-8

Adhesion by pull-off test - ČSN EN 1542
 The determination of concrete tensile splitting strength - ČSN EN 12390-6 (informatively)

Test sample: XYPEX® Concentrate

Cement mixture type (CC) with XYPEX® basis

Test purpose: Verification of selected parameters of crystallization coating on a concrete

Producer: XYPEX CE Ltd., factory Betosan Ltd., Batelov, CZ

Type of protection: Single-layer – non-structural

Method of testing: Coating applied to opposite sides of 150 mm cube

Type of surface: Hardened Concrete C 12/15, C 16/20, C 20/25, C 25/30 - age of concrete more than 1 year (3 test specimens from each concrete strength class - loosely stored in the lab air)

Coating Thickness : 0.8 mm to 1 mm

Number of coats: 1 coat

Place of application: Laboratory OL 123

Applied by: Mr Ivan Kovačik (customer technician) under supervision of OL 123 technician

Preparation of coating: According to the instructions on the product packaging and to manufacturer's data sheet

Preparation of the substrate: Mechanical surface cleaning with a wire brush and moistened to saturated surface dry

Date coating application: 23. 4. 2010

Method of treating objects in OL: Climate box BT120 (temperature 20 ±2 °C, Rh > 95 %)

Storage time of test samples: 28 days to 91 days after application to a substrate

Date of water penetration test / Age of coating: 21. 5. 2010 / 28 days (test + reference)

23. 7. 2010 / 91 days (test)

Date of adhesion test / Age of coating: 21. 5. 2010 / 28 days

Type of test discs: Steel ø 50 mm, thickness 25 mm

Type of measuring device: COMTEST OP3/4, max. F = 15 kN, COMING, Ltd.

Glue type/Cure time: PMM X-60 Hottinger / 5 min

Measurement points preparation: Diamond drill coring to the substrate, Dust cleaning from the test location

Deviation from standard method: Coating adhesion test was performed on the lateral side of the test specimen

Test of resistance to water pressure was performed on one specimen in each time period

Expanded combined measurement uncertainty (k=2, equivalent to 95% certainty): 2,3 % (pull-off test);

2,4 % (water resistance and tensile splitting strength)

Test results:

Test sample / surface	Average adhesion by pull-off test (MPa)	Failure type after pull-off test ³⁾ ČSN EN 1542	Depth of penetration of water under pressure ČSN EN 1390-8 (mm)			Average tensile splitting strength (concrete surface) (MPa)
			reference ¹⁾	test 28 days	test 91 days ²⁾	
C 12/15	1.0	95A:5A/B	104	6	<1	1.3
C 16/20	1.5	90A:10A/B	52	4	<1	1.8
C 20/25	1.8	85A:15A/B	38	3	<1	2.5
C 25/30	2.3	90A:10A/B	21	2	<1	2.9

Note:

¹⁾ Reference substrate was uncoated and tested only after 28 days storage.

²⁾ The pressurized water did not go through the XYPEX Concentrate coating into the substrate during the test.

³⁾ A = cohesive failure in coating; A/B = adhesive failure between coating and substrate.

End Protocol

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Note:

This protocol may be reproduced only taken as a whole, a part can be reproduced only with the written permission of the laboratory.

The test was executed in accordance with test standard, unless a specific deviation is stated in the protocol text.

The test results relate solely to the test subject (test sample).

Any comparison of measured values with required values are given in accordance with ČSN EN ISO/IEC 17025:2005.

